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EXAMINER	
CHANG, EDITH M	

ART UNIT	PAPER NUMBER
2637	

DATE MAILED: 02/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/049,856	NISHIMURA ET AL.	
	Examiner	Art Unit	
	Edith M. Chang	2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 February 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,3 and 5-24* is/are pending in the application.

4a) Of the above claim(s) *18-24* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,3 and 5-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 February 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *20020219*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 18-24 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on November 30, 2005.

Drawings

2. Figures 19A-19D, 20A-20D and 21 should be designated by a legend such as -- Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 11 and 14-17 are objected to because of the following informalities:

Claim 11, line 21 & Claim 14, line 13: "data based on a time interval" should be changing to "the data based on the time interval".

Claim 13, line 5: "converting data" should be "converting said data".

Claims 15-17 are dependent on the objected claim 14.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 2-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2-10 provide for the use of sequences as the data to be transmitted, but, since the independent method claim 2 does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

6. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim.

Claim 12 is an apparatus claim of a bidirectional data communication system, however, the claim does not contain a claim body to include any elements of the system.

7. Claims 8-11, 13-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8, lines 2-3: "the number of corresponding bits" does not clearly indicate that what are "corresponding bits".

Claim 9, lines 5 & 7: "when A is followed by ... are partially or entirely used" does not clearly indicate that what *are* used?; lines 9 & 11: "when B is followed by ... are partially or entirely used" does not clearly indicate that what *are* used?; lines 6, 8 & 10: "interposed therebetween" does not clearly indicate that interposed what therebetween what ?

Claim 10, lines 5 & 7: "when A is followed by ... are partially or entirely used" does not clearly indicate that what *are* used? ; lines 9 & 11: "when B is followed by ... are partially or entirely used" does not clearly indicate that what *are* used?; lines 6, 8 & 10: "interposed therebetween" does not clearly indicate that interposed what therebetween what?

Claim 11, lines 4, 9, 14-15, 16, 20 and 23: "said first specific sequence" lacks antecedent basis.

Claim 13, lines 3-4 & 7: "said first specific sequence" lacks antecedent basis.

Claim 14, line 4, 6-7, 8, 12 & 15: "said first specific sequence" lacks antecedent basis.

Claim 16, lines 2-3: "the number of corresponding bits" lacks antecedent basis and does not clearly indicate that what are "corresponding bits"; lines 4, 6-7 & 19: "said

first specific sequence" lacks antecedent basis; lines 10 & 12: "when A is followed by ... are partially or entirely used" does not clearly indicate that what *are* used? ; lines 14 & 16: "when B is followed by ... are partially or entirely used" does not clearly indicate that what *are* used?; lines 11, 13 & 15: "interposed therebetween" does not clearly indicate that interposed what therebetween?; line 18: "said threshold value is set to 10 and –10" does not clearly indicate that what value, 10 or –10, is set to said threshold value; line 20: "said threshold value is set to 6 and –6" does not clearly indicate that what value, 6 or –6, is set to said threshold value.

Claim 17, lines 3-4: "the number of corresponding bits" lacks antecedent basis and does not clearly indicate that what are "corresponding bits"; lines 5, 8 & 20: "said first specific sequence" lacks antecedent basis; lines 11 & 13: "when A is followed by ... are used" does not clearly indicate that what *are* used? ; lines 15 & 17: "when B is followed by ... are used" does not clearly indicate that what *are* used?; lines 12, 14 & 16: "interposed therebetween" does not clearly indicate that interposed what therebetween what?; line 19: "said threshold value is set to 6 and –6" does not clearly indicate that what value, 6 or -6, is set to said threshold value; line 21: "said threshold value is set to 4 and –4" does not clearly indicate that what value, 4 or –4, is set to said threshold value.

Claim 15 is dependent on the rejected claim 14.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 2-3, 5-7 and 11-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakamura (US 5,923,701).

Regarding **claim 2**, Nakamura discloses a data communication method (FIG.1A-1E). In FIG.1B, a *first specific sequence (PN Code)* having a sharp autocorrelation function and in FIG.1C, *a second specific sequence (Inverted PN Code)* having a specific relation with the first specific sequence, wherein a time interval (position when the data symbol value M= or N =) represents the data symbol value M (for the first specific sequence) or N (for the second specific sequence) interposed between PN codes.

Regarding **claim 3**, in FIG.3B, Nakamura discloses a binary sequence (PN Code) is used as said first specific sequence and said second specific sequence, and said time interval is set on a bit (chip) basis.

Regarding **claim 5**, in FIG.1F, Nakamura discloses two communication paths (10 & 20), said first specific sequence (PN Code 10) is used in one communication path, and an Inverted first specific sequence (Inverted PN Code 20, column 5, lines 36-39) is used in the other communication path.

Regarding **claim 6**, in FIG.1F, Nakamura discloses a pseudo-noise sequence (PN Code) is used as said first specific sequence (PN Code 10).

Regarding **claim 7**, in FIG.1B, Nakamura discloses a PN Code ("1,1,1,-1,-1,1,-1", column 5, lines 13-15) of a 7-chip Baker code of the pattern (+++--+-).

Regarding **claim 11**, in FIG.1F, Nakamura discloses a data communication system for transmission between a transmitter (element 10 or 20, details in FIG.2) and a receiver (element 40, details in FIG.5), wherein

said transmitter in FIG.2 includes

a converting means (a differential coder 201) for converting the data into time intervals.

a storage means (PN Code Generator 213) for storing first specific sequences (PN Codes), and

a transmitting means (a pulse position modulation circuit 207 & transmission antenna 218) for interposing said time interval between said first sequences for transmission, and

said receiver in FIG.5 includes

a detection signal generating means (513 Match Filter & 514 Peak Detecting Circuit) for detecting said first specific sequences in a received sequence, and

a restoring means (elements 516 & 518) for restoring data based on a time interval length between detected signals minus the length of said first specific sequence (the slots between PN Codes as shown in FIG.1B or 1C).

Regarding **claim 12**, Nakamura discloses a bidirectional communication system for transmission (FIG.2) and its method (FIG.1A-1E). In FIG.1B, a *first specific sequence (PN Code)* in one communication path (the first data symbol) have a sharp autocorrelation function and in FIG.1C, *a second specific sequence (Inverted PN Code)* in the other communication path (the second data symbol) have a specific relation with the first specific sequence, wherein the time interval (position when the data symbol value M= or N =) represents the data symbol value M (for the first specific sequence) or N (for the second specific sequence) interposed between PN codes (column 5 lines 5-17).

Regarding **claim 13**, in FIG.2, Nakamura discloses a data transmitting device comprising:

a converting means (a differential coder 201) for converting the data into time intervals,

a storage means (PN Code Generator 213) for storing first specific sequences (PN Codes), and

a transmitting means (a pulse position modulation circuit 207 & transmission antenna 218) for interposing said time interval between said first sequences for transmission (FIG.1B & 1C).

Regarding **claim 14**, in FIG.5, Nakamura discloses a data receiving device comprising:

a detection signal generating means (513 Match Filter & 514 Peak Detecting Circuit) for detecting first specific sequences in a received sequence, and

a restoring means (elements 516 & 518) for restoring data based on a time interval length between detected signals minus the length of said first specific sequence (the slots between PN Codes as shown in FIG.1B or 1C).

Regarding **claim 15**, in FIG.5, Nakamura discloses a data receiving device comprising a Match Filter 513 and Peak Detection Circuit 514 to detect whether correlation between a partial received sequence and said first specific sequence exceeds a threshold value or not and it is well know in the art that the threshold value can be varied to minimize quantization value and to reduce impairment of decoding.

Allowable Subject Matter

10. Claims 8-10 and 16-17 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach or suggest, alone or in a combination, among other things, at least a data communication method and a receiving device as a whole, the combination of elements and features, which includes a sequence A=11100010010 or A=1011000, and a sequence B inverted of A, B=00011101101 or B=0100111 are used as first specific sequences as recited in the claims.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nakamura (US 6,055,266) describes a spread spectrum pulse position modulation communication system with a threshold in the peak detecting that the data symbol is represented in the time interval of the specific sequences (FIG.1A-FIG.1B, FIG.4A-4B, FIG.8 & FIG.13).

Kondo (US 5,832,021) describes the well known varied threshold value to minimize quantization value and to reduce impairment of decoding in the spread spectrum receiver.

Okazaki et al. (IEEE Singapore ICCS/ISITA 1992) "Spread Spectrum Pulse Position Modulation" describes the SS-PPM system and the signal structure with data symbol represented by a time interval between PN Codes.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M. Chang whose telephone number is 571-272-3041. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay K. Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
February 7, 2006

KHAI TRAN
PRIMARY EXAMINER